AMENDMENTS TO THE SPECIFICATION

PLEASE AMEND the paragraph at P10/L8-17 as indicated by the following replacement paragraph:

The modeling function can include other parameters, for example[[s]] indicia of environmental conditions. A communication system implementing vector mismatch calibration according to the invention can include one or more environmental sensors for providing indicia of one or more environmental conditions. One example of an environmental conditions that can influence vector mismatch is temperature of circuitry in the communication system. Another environmental condition that can be determined by circuitry controlling the local oscillator of a communication system is the frequency of local oscillator. The local oscillator may have quadrature signals whose phase relationship varies somewhat over a frequency range. Incorporating the local oscillator frequency ~~to~~ into the model may help improve its accuracy.

PLEASE AMEND the paragraph at P12/L9-21 as indicated by the following replacement paragraph:

Vector mismatch between signal paths of frequency translation subsystem 110 ~~cause~~ causes calibration signal S3a and S3b to differ. FIGS. 8, 11, and 14 are time-domain plots illustrating calibration signals S3a and S3b on the same axes with differences caused by phase-only, amplitude-only, and phase/amplitude types of vector mismatch. FIGS. 8-10 illustrate differences caused by phase mismatch between signal paths, FIGS. 11-13 illustrate differences caused by amplitude mismatch, and FIGS. 14-16 illustrate differences caused by vector mismatch comprising both phase and amplitude mismatch. In FIGS. 8-10, the 70, 90, and 110 kHz tones of signals S3a and S3b have relative amplitudes (i.e., amplitude-type vector mismatch) of -1, 0, and +1 dB, respectively. In FIGS. 11-13, these tones have relative phases (i.e., phase-type vector

PAGE 2/27 * RCVD AT 12/23/2005 10:36:15 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-6/24 * DNIS:2738300 * CSID:5099372760 * DURATION (mm-ss):08-16

mismatch) of +1, 0, -2 degrees, respectively. In FIGS. 14-16, these tones have the combined vector mismatches illustrated in FIGS. 8-10 and FIGS. 11-13 (phase/amplitude-type vector mismatch).

PLEASE AMEND the paragraph from P12/L29 to P13/L11 as indicated by the following replacement paragraph:

A vector mismatch calibration system according to various aspects of the present invention determines (at least to an estimate) a value of vector mismatch that minimizes (at least down to an acceptable local minimum or the system noise level) the difference between samples of an observed calibration signal and samples of a modeled calibration signal. The system compares the observed samples ~~are compared~~ to the modeled samples without the modeled samples necessarily needing to be stored in any separate form. In other words, the modeled samples may exist only mathematically in the equations used during comparison. The system generates the modeled samples (again, not necessarily as actual data values) by a mathematical function of parameters including (1) an estimated vector mismatch (e.g., estimated phase and/or amplitude) and (2) a plurality of basis functions. This modeling is discussed in further detail below with reference to FIGS. 4-7. The parameters can also include indicia of environmental conditions such as temperature or local oscillator frequency.

PAGE 3/27 * RCVD AT 12/23/2005 10:38:15 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-6/24 * DNIS:2738300 * CSID:5099372760 * DURATION (mm-ss):08-16